

CLINICAL PHARMACY PRIORITISATION TOOLS TO IMPROVE PATIENT CARE



**Dr Penny Lewis, Clinical Lecturer, University of Manchester &
Academic Lead Pharmacist for Research, Manchester University
Foundation Trust, UK**

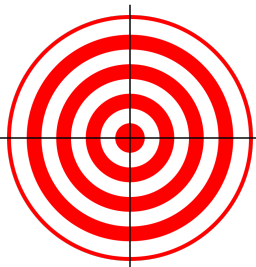
**Mr Steve Williams, Senior Clinical Pharmacist, Westbourne Medical
Practice , Dorset & Honorary Clinical Lecturer at the University of
Manchester, UK**

Conflict of interest: nothing to disclose



WORKSHOP CONTENT

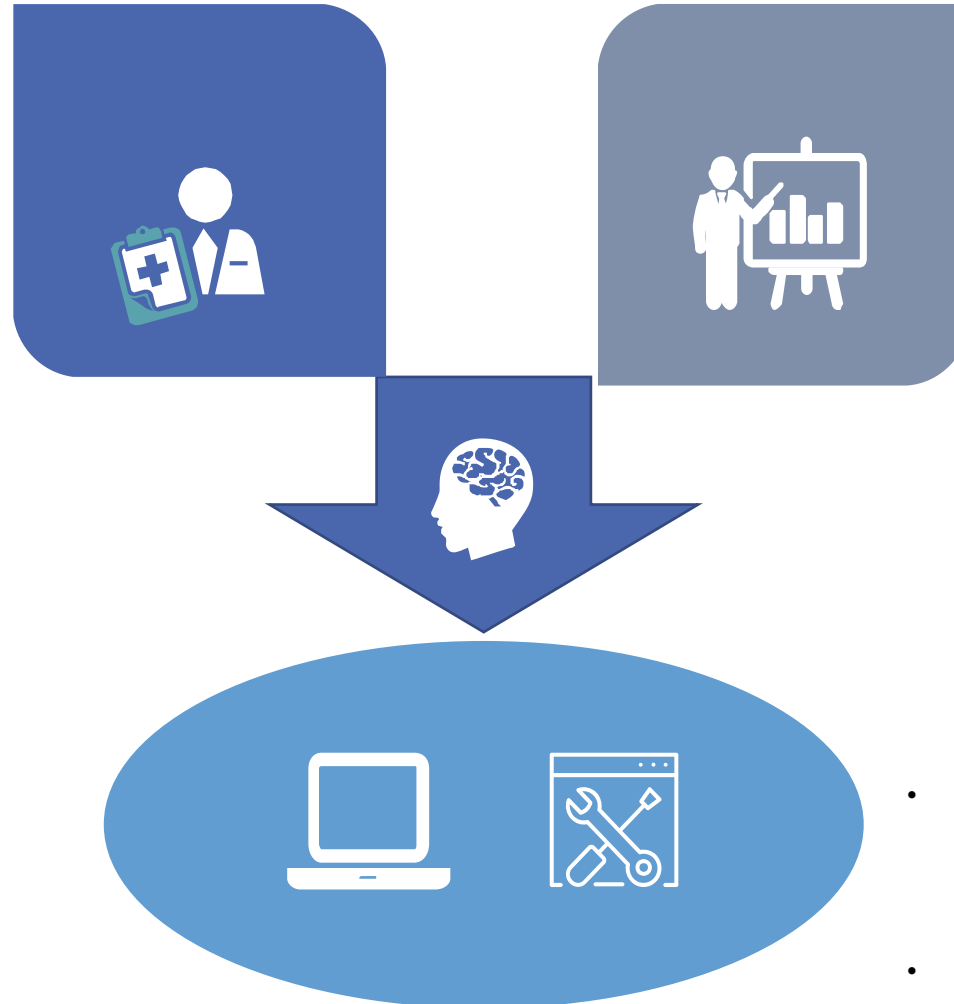
- Why prioritise?
- What is the current evidence?
- What makes a patient complex or a priority?
- What makes a good prioritisation tool?
- What factors should you consider when implementing a prioritisation tool?



Why Prioritise?

Safety

- Pharmacists play key role in **patient safety**
- EQUIP found 1/10 hospital prescriptions contain an error¹
- **Risk of ADEs** if miss patients who need review



Efficiency

- Are we making the most of **pharmacy resources** including staff and experience?
- Is the traditional model of delivery working?
- **Can we effectively respond to pressures on the system e.g. Covid 19, MR targets, 24/7 working?**

Development of tools

- Acuity or prioritisation tools to target pharmacy services to those patients who would most benefit
- Locally developed systems

1. Ashcroft DM, Lewis PJ, Tully MP, Farragher TM, Taylor D, Wass V et al. Prevalence, Nature, Severity and Risk Factors for Prescribing Errors in Hospital Inpatients: Prospective Study in 20 UK Hospitals. Drug Safety 2015; 38(9):833-843.



POLL: HOW DO YOU DECIDE WHICH PATIENTS TO SEE FIRST?

- By speaking to nurses and/or doctors
- From previous pharmacist handover
- I see patients taking high risk medicines first
- By management choice to serve some units and not others
- By using a prioritisation tool
- I don't- I tend to start at bed one
- Other



Systematic Review

- Nineteen studies involving **17** risk assessment tools- included **from around the world**.
- **Heterogeneous** - targeting different patient groups and clinical settings
- Lack of agreement on tool components - include **many different risk factors**
- **None measured impact** on prescription errors or ADEs
- Perceived positive impact of risk assessment tools on **patient care** and **pharmacy service provision**.



Alshakrah M, Steinke D, Lewis PJ. Patient prioritization for pharmaceutical care in hospital: A systematic review of assessment tools. *Research in Social and Administrative Pharmacy* 2019; 15(6):767-779.



National UK Survey

- **54%** (n=70) of UK trusts and health boards have a tool or system for assigning clinical pharmacy services (RR of 76.5%, 130/170)
- Red/highest priority reviewed daily, amber 48 - 72 hours, lowest risk reviewed less frequently or at discharge
- **Local development or adapted** from other hospitals
- Hospitals at **various stages of development**
- **No standardised approach**
- Little formal evaluation
- **Need for** systematically developed, **evidence-based tools** in practice

Original research



OPEN ACCESS

Patient prioritisation for hospital pharmacy services: current approaches in the UK

Aseel S Abuzour ,¹ Gillian Hoad-Reddick,² Memona Shahid,¹ Douglas T Steinke,^{1,3} Mary P Tully,¹ Steven David Williams ,^{1,4} Penny J Lewis ^{1,3}

▶ Additional material is published online only. To view, please visit the journal online (<http://dx.doi.org/10.1136/ejpharm-2020->

ABSTRACT
Objectives To survey and explore current approaches to deployment of pharmaceutical care prioritisation tools in acute hospitals in the UK.

outlines the importance of supporting NHS staff to 'deliver the right staff, with the right skills, in the right place at the right time'. Some healthcare professions, such as nursing, have invested in evidence-based deci-

Abuzour A, Hoad-Reddick G, Shahid M, Steinke D, Tully M, Lewis PJ. Patient prioritisation for hospital pharmacy services: current approaches in the United Kingdom. *European Journal of Hospital Pharmacy*. Online First: 01 December 2020



Impetus for Tool Use

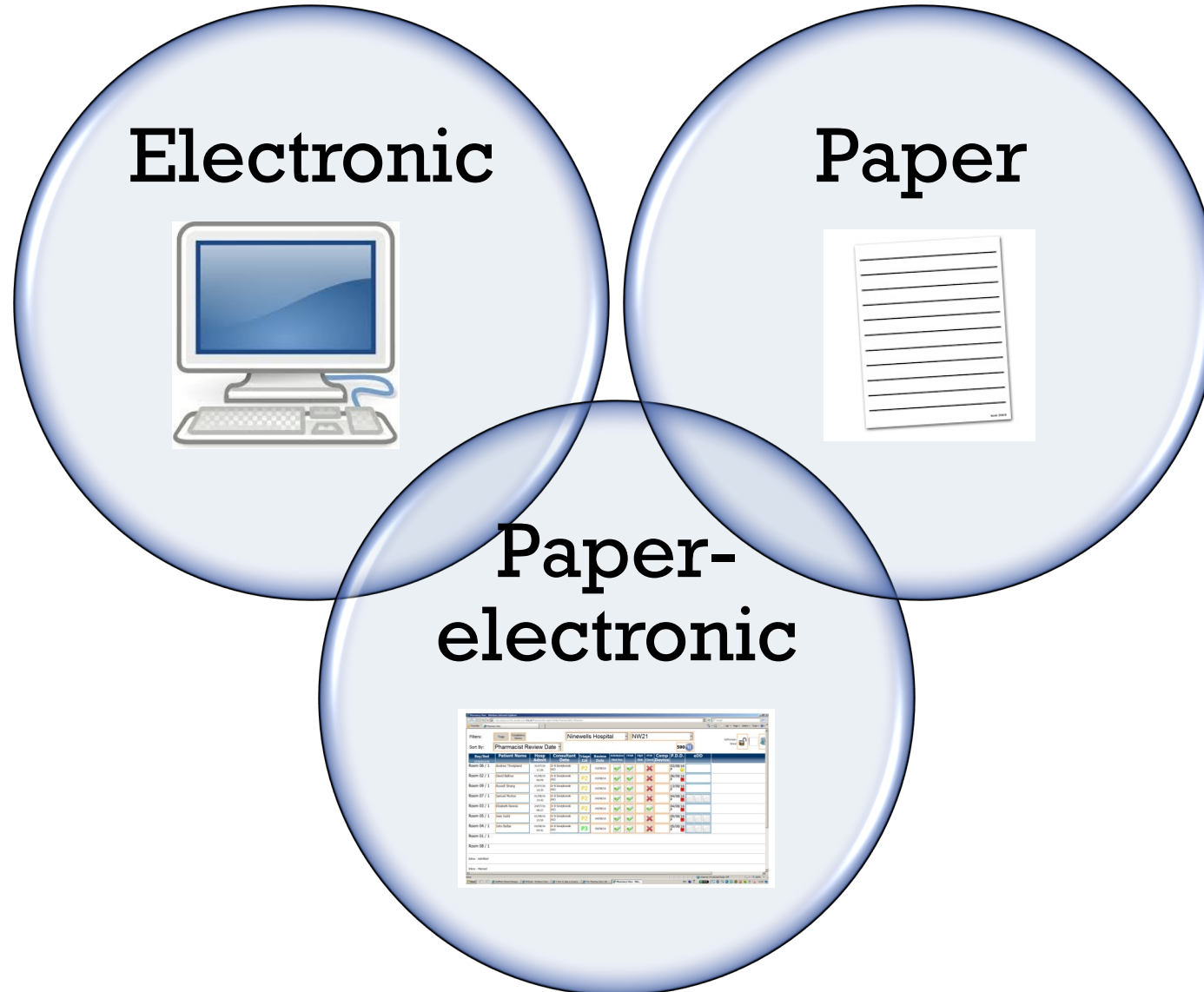
*“What’s become really apparent is that we are doing some patients a really significant disservice, because they’re not getting enough time from us. So, this, to me, is less about stopping seeing people who don’t need us, although I think that is important, **it’s more about making sure that we’re seeing the people who really do need us.**”*



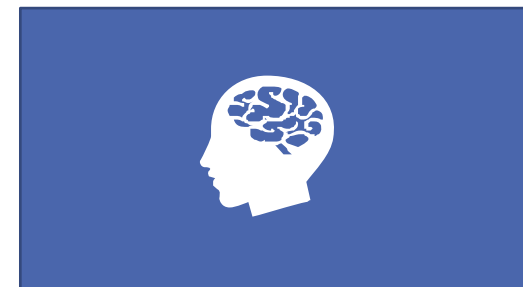
Types of Tools



Predictive models

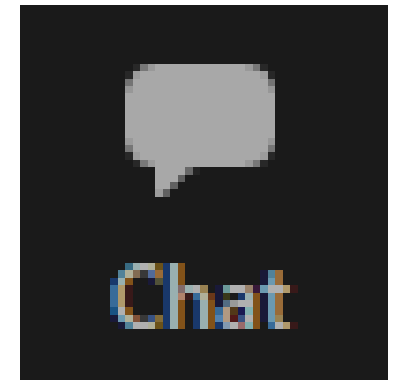


Naturalistic expert
knowledge driven tools

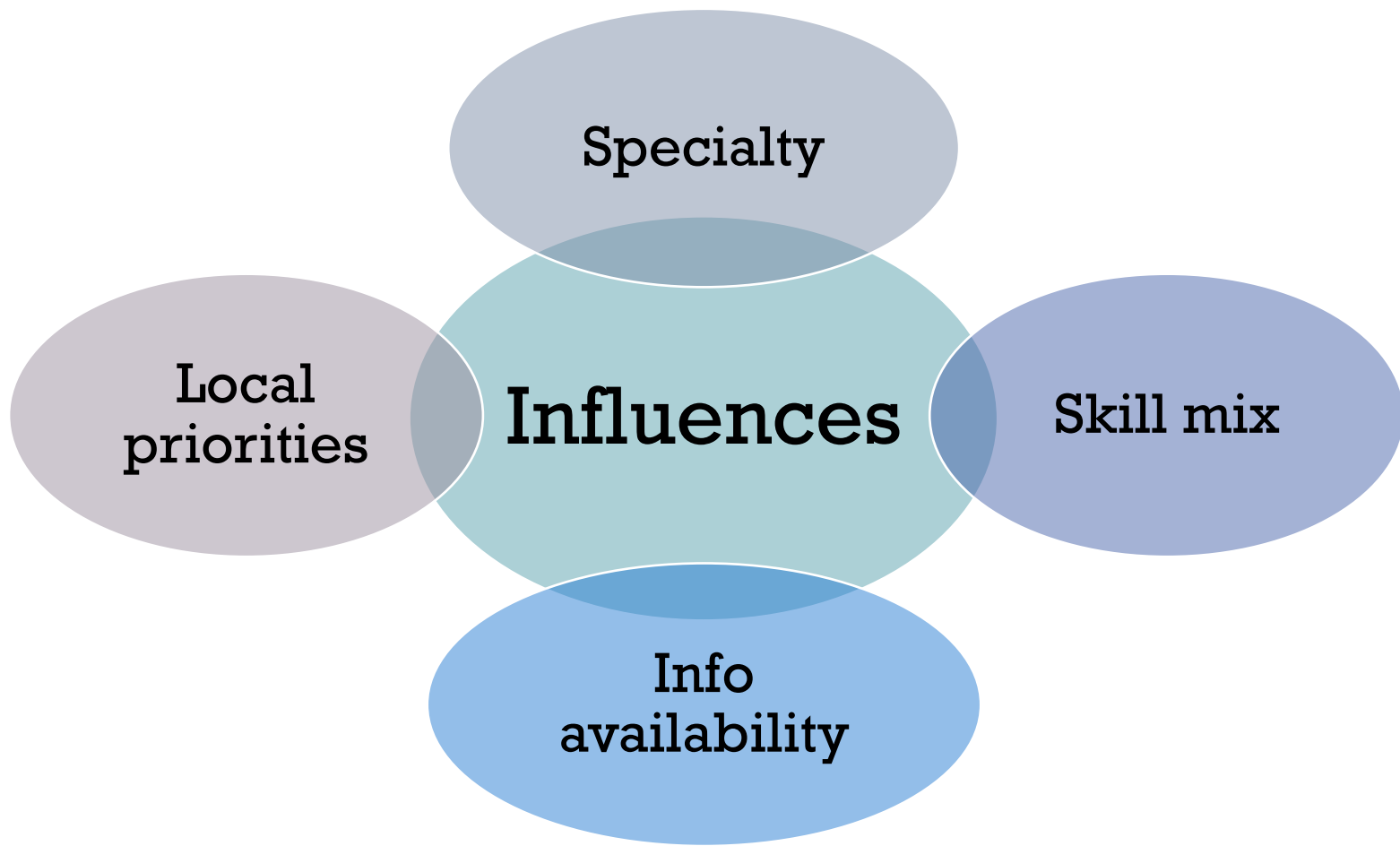


WHAT FACTORS MAKE A PATIENT A PRIORITY FOR PHARMACY REVIEW?

Please put your responses in the chat

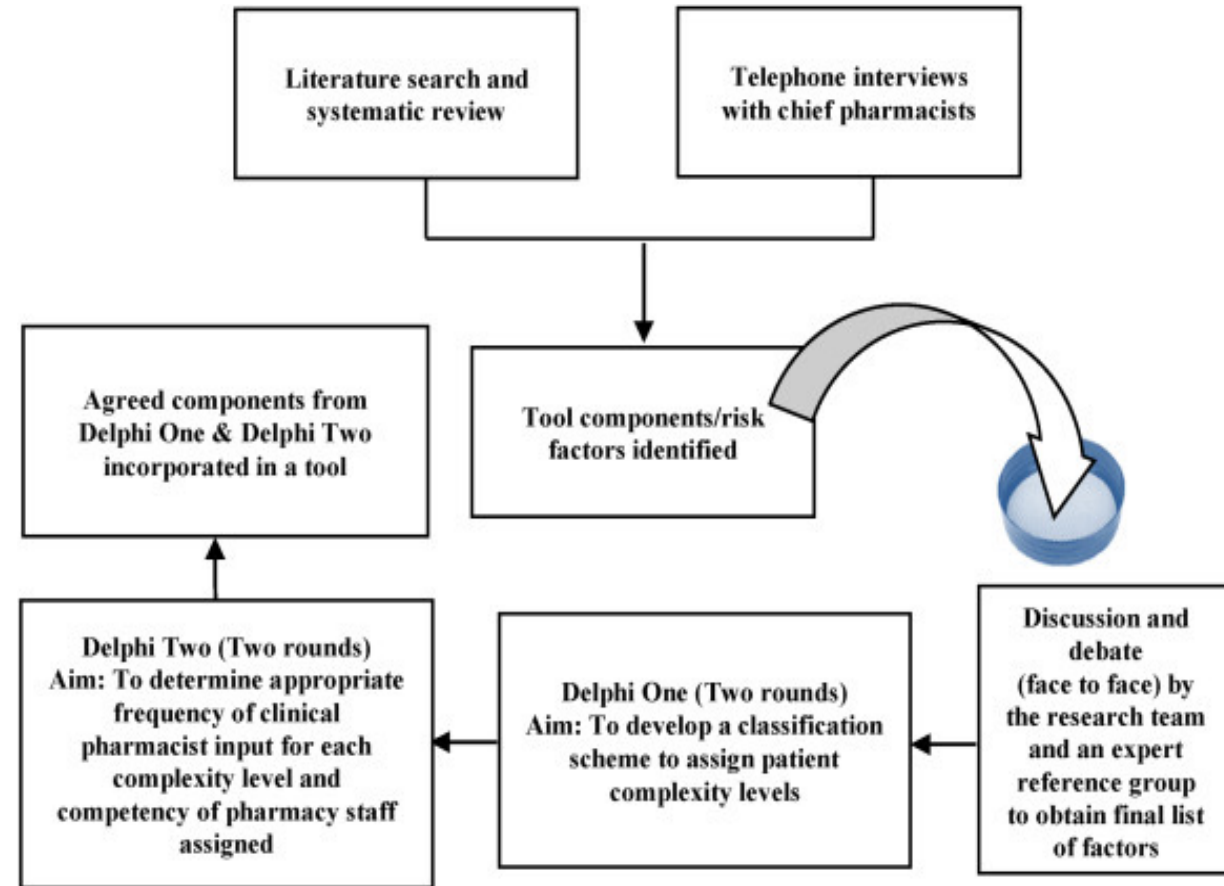


Selection of tool components



What makes a patient complex or a priority?

- **International Delphi** study including **33 experts** and consensus reached on 92 components.
- Components grouped into demographic, clinical and medication components and condensed to 33 items and included in the first draft of the **Adult Complexity Tool for Pharmaceutical Care (ACTPC)**
- ACTPC tool stratifies patients into highly, moderately or least complex
- **National Delphi study** including **40 experts** reach consensus on review frequency and experience of pharmacy practitioner at each level



FUNDED BY

NIHR

National Institute
for Health Research



THE ADULT COMPLEXITY TOOL FOR PHARMACEUTICAL CARE

Adult complexity tool for pharmaceutical care (ACTPC-Form 1)

Patient name:		Diagnosis:	
Patient hospital number:		Triage date/time:	
Age:		Pharmacist:	
Weight:		Ward:	

Criteria Scope	Criteria	Red Criteria Descriptions	Tick	Solution
Clinical Related Criteria	Priority Diseases	Patient has any of the following diseases and is in an unstable condition according to your clinical judgement: Endocarditis <input type="checkbox"/> Hypertrophic crisis <input type="checkbox"/> NSTEMI/STEMI <input type="checkbox"/> Decompensated heart failure <input type="checkbox"/> Parkinson disease <input type="checkbox"/> Epilepsy <input type="checkbox"/> Mental health conditions <input type="checkbox"/> Myasthenia gravis <input type="checkbox"/> COPD deficiency <input type="checkbox"/> Porphyria <input type="checkbox"/>	<input type="checkbox"/>	+ This tool (ACTPC-Form) (With red criteria only) for use directly on admission at ADULT ACUTE MEDICAL UNIT.
	Infectious Diseases	Patient has any of the following diseases and is in an unstable condition according to your clinical judgement: Meningitis <input type="checkbox"/> Sepsis <input type="checkbox"/> HIV <input type="checkbox"/> Tuberculosis(TB) <input type="checkbox"/>	<input type="checkbox"/>	+ Patients who meet any of these criteria/identified as clinically unstable are immediately rated as 'RED' and are a high priority for both initial medicines reconciliation and continuing clinical review.
	Acute Kidney Injury	Stage 3: a rise in creatinine ≥ 3 times the baseline value	<input type="checkbox"/>	+ The priority level can be changed at any time if the patient's circumstances change.
	Chronic Kidney Disease	Severely decreased: GFR ≤ 29 ml/minute	<input type="checkbox"/>	+ Patients who have any red criteria can be downgraded depending on clinical condition and/or medication changes by using ACTPC-Form 2.
	Hepatic Impairment (LFTs)	Severe hepatic impairment (LFTs ≥ 3 times the upper limit of normal)	<input type="checkbox"/>	
Miscellaneous	An organ transplant		<input type="checkbox"/>	
High risk medication and medicines requiring TDM list**				
Polypharmacy	Prescribed ≥ 15 regular medicines with complex regimen e.g. drug-drug or drug-disease interactions.	Anticoagulants: Heparin, LMWH, Warfarin, NOACs (Apixiban, Dabigatran, Rivaroxaban, Edoxaban), Anti-Psychotics: Clozapine, Depot Injections Chemotherapy Anti-epileptic medication: Sodium Valproate, Lamotrigine, Levetiracetam, Phenytoin Antibiotics for HIV and Hepatitis: Dolutegravir, Emtricitabine, Lamivudine, Tenofovir Immunosuppressants: Azathioprine, Cyclosporine, Methotrexate, Mycophenolate, Tacrolimus	<input type="checkbox"/>	
Medication Risk	Prescribed any high risk medicines** or medicines requiring TDM** with documented or suspected toxic or subtherapeutic effect.	Antivenoms for HIV and Hepatitis: Dolutegravir, Emtricitabine, Lamivudine, Tenofovir Immunosuppressants: Azathioprine, Cyclosporine, Methotrexate, Mycophenolate, Tacrolimus	<input type="checkbox"/>	
Treatment Interactions	Documented or suspected toxic or subtherapeutic effect due to drug interactions.	Narrow Therapeutic Index: Amphotericin, Digoxin, Lithium, Phenytoin, Theophylline Optimal & Suboptimal Dose: Propofol, Sevoflurane, Isoflurane, Fentanyl, Morphine, Medication, Dexamethasone	<input type="checkbox"/>	
Drug related problems	Patient admitted due to an adverse drug reaction	Parkinson's disease medication: Co-Amalgam, Carbidopa, Entacapone, Rasagiline IV Antibiotics: Vancomycin, Gentamicin, Amikacin, Tobramycin, Rifampicin, Erythromycin, Clindamycin, Vancomycin e.g. Midazolam, Propofol, Desflurane, Isoflurane, Sevoflurane, Volarone Inotropes, Vasopressors Antifungals: Anidulafungin, High dose or extended course duration of Fluconazole Total parenteral nutrition (TPN), immunoglobulins, Insulin Contraception, Intravenous beta-blocker	<input type="checkbox"/>	
Miscellaneous	Abnormal laboratory results related to medication or if dose adjustment/omissions are required		<input type="checkbox"/>	
Criteria Range	Risk level	Complexity level	Pharmacist level	Pharmacist Comments
The patient has one or more red criteria	High risk	Highly complex- should be seen in the first 6-12 hours of admission then daily	Experienced clinical pharmacist	
Overall assessment of pharmaceutical care complexity: High <input type="radio"/> Low or Moderate <input type="radio"/>				

Adult complexity tool for pharmaceutical care (ACTPC-Form 2)

Patient name:		Admission date/time:	
Patient hospital number:		Diagnosis:	
Age:		Triage date/time:	
Weight:		Pharmacist:	

Criteria Scope	Criteria	Red, Amber and Green Criteria Descriptions	Tick
Clinical Related Criteria	Priority Diseases	Patient has any of the following diseases and is in an unstable condition according to your clinical judgement: Endocarditis <input type="checkbox"/> Hypertrophic crisis <input type="checkbox"/> NSTEMI/STEMI <input type="checkbox"/> Decompensated heart failure <input type="checkbox"/> Parkinson disease <input type="checkbox"/> Epilepsy <input type="checkbox"/> Mental health conditions <input type="checkbox"/> Decompensated heart failure <input type="checkbox"/> Myasthenia gravis <input type="checkbox"/> COPD deficiency <input type="checkbox"/> Porphyria <input type="checkbox"/>	<input type="checkbox"/>
	Infectious Diseases	Patient has any of the following diseases and is in an unstable condition according to your clinical judgement: Meningitis <input type="checkbox"/> Sepsis <input type="checkbox"/> HIV <input type="checkbox"/> Tuberculosis(TB) <input type="checkbox"/>	<input type="checkbox"/>
	Acute Kidney Injury	Stage 3: a rise in creatinine ≥ 3 times the baseline value Stage 2: a rise in creatinine from 2 to 2.9 times the baseline value Stage 1: a rise in creatinine from 1.5 to 1.9 times the baseline value	<input type="checkbox"/>
	Chronic Kidney Disease	Severely decreased: GFR ≤ 29 ml/minute Moderately decreased: GFR 30-29 ml/minute Mildly to moderately decreased: GFR 45-59 ml/minute	<input type="checkbox"/>
	Hepatic Impairment (LFTs)	Severe hepatic impairment (LFTs ≥ 3 times the upper limit of normal) Moderate hepatic impairment (LFTs ≥ 2 times the upper limit of normal) Patient had at least one admission in the last month. (Discharged < 30 days ago)	<input type="checkbox"/>
Miscellaneous	An organ transplant		<input type="checkbox"/>
High risk medication and medicines requiring TDM list**			
Polypharmacy	Prescribed ≥ 15 regular medicines with complex regimen e.g. drug-drug or drug-disease interactions	Anticoagulants: Heparin, LMWH, Warfarin, NOACs (Apixiban, Dabigatran, Rivaroxaban, Edoxaban), Anti-Psychotics: Clozapine, Depot Injections Chemotherapy Anti-epileptic medication: Sodium Valproate, Lamotrigine, Levetiracetam, Phenytoin Antibiotics for HIV and Hepatitis: Dolutegravir, Emtricitabine, Lamivudine, Tenofovir Immunosuppressants: Azathioprine, Cyclosporine, Methotrexate, Mycophenolate, Tacrolimus	<input type="checkbox"/>
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Treatment Interactions	Documented or suspected toxic or subtherapeutic effect due to drug interactions.	Narrow Therapeutic Index: Amphotericin, Digoxin, Lithium, Phenytoin, Theophylline Optimal & Suboptimal Dose: Propofol, Sevoflurane, Isoflurane, Fentanyl, Morphine, Medication, Dexamethasone	<input type="checkbox"/>
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Miscellaneous	Abnormal laboratory results related to medication or if dose adjustment/omissions are required		<input type="checkbox"/>
Criteria Range	Risk level	Complexity level	Pharmacist practitioner level
The patient has one or more red criteria	High risk	Highly complex- should be seen in the first 6-12 hours of admission then daily	Experienced clinical pharmacist
The patient has one or more amber criteria	Moderate risk	Moderately complex- should be seen in the first 24 hours of admission then daily	Clinical pharmacist
The patient meets with no acute issues AND has no red or amber criteria	Low risk	Least complex- should be seen in the first 24 hours of admission then twice weekly	Clinical pharmacist
In the absence of specific example relevant to each individual criteria, allocate the patient based on clinical judgement. The priority level can be changed at any time if the patient's circumstances change.			
Overall assessment of pharmaceutical care complexity: Low <input type="radio"/> Moderate <input type="radio"/> High <input type="radio"/>			
Date: _____			
Date: _____			
Date: _____			
Date: _____			
** Provided on the back of this tool.			



Research in Social and Administrative Pharmacy

Available online 14 February 2021

In Press, Journal Pre-proof



Development of the adult complexity tool for pharmaceutical care (ACTPC) in hospital: a modified Delphi study

Meshal A. Alshakrah, Douglas T. Steinke, Mary P. Tully, Aseel S. Abuzour, Steven D. Williams, Penny J. Lewis

Alshakrah MA, Steinke DT, Tully MP, Abuzour AS, Williams SD, Lewis PJ. Development of the adult complexity tool for pharmaceutical care (ACTPC) in hospital: a modified Delphi study. Research in Social and Administrative Pharmacy 2021; online first 14 Feb.

ACTPC-1

ACTPC-2

FUNDED BY

NIHR | National Institute for Health Research



Tool Benefits

- **Surveillance** and oversight of pharmacy service demand - facilitating the management of staffing and efficient use of resources
- Ability to assign **appropriately experienced** pharmacist

“As manager, to be able to look through and see which areas may be struggling... for whatever reason, be able to approach the team and find out what's happened or what extra help they need as well. So we've got much better oversight.”

“As well as individual pharmacists managing their own workload it lets the team leaders manage the work of the whole team and allows them to target tasks to individuals based on individuals' knowledge and skills”

“We don't normally go to orthopaedics but there's a new patient on the orthopaedic ward that's on high risk drugs, somebody go and sort that out.”



Tool Benefits

- Enhanced **continuity of care**

“A pharmacist would go in totally naïve to what the care issues were and now, because everything is logged, you know the patient red, amber or green, you can see from the comments column what made them that status, the continuity of care is, I would say, is far improved.”

- **Learning opportunity**

“And also gives them [pharmacists] responsibility of making sure that they discuss the more unwell patients, or the higher priority patients, that they discuss them with somebody more senior”

- **Instilled confidence**

“ ...it lets individuals feel confident they've done the things they need to do in the order they need to do them. So the days of when you turned up on a ward and had to go around every bed just to find the things you need to do are gone now. So you can confidently not go and see patients because nothing's changed.”



Tool Drawbacks

- **Implementation problems** - lack of pharmacist uptake
- Potential to miss out on **wider pharmaceutical issues**

“...you have, pharmacists are generally quite risk averse. So we do have pharmacists that say I couldn't possibly leave this patient from Thursday to Friday but will leave them at the weekend.”

“So a patient that's had their meds sorted out on admission and everything's gone green gets left behind...and the opportunity for a pharmacist to have a conversation with them and suddenly realise there's some issues around their concordance and things like that is gone because we've deselected them as being high risk.”



Tool Drawbacks









- Paper-based systems (vs electronic systems)
- Tool sensitivity
- Risk of deskilling

“...the difficulties are that we don't have an electronic system at the moment, there isn't a way of identifying patients that we are potentially missing. So if...a new medication has been prescribed, there isn't a way of that being flagged up to us, like it would be in an electronic system.”

“In the Epic system, you can get a list of patients that are on high risk medicines, but we found that that wasn't very effective because so many patients are on high risk medicines, so that it actually doesn't help you target patients, it's too crude.”



Top Tips for Tool Use

-  Explore current tools
-  Adapt tools - ensuring fit local context
-  Include engagement from the frontline team
-  Time effective and clear
-  Allow for professional judgement
-  Consider at implementation of EPR and EP
-  Allow for human contact
-  Evaluate



Workshop reflection

- How do you currently prioritise patients for pharmaceutical care in your organisation?
- What are the advantages and disadvantages of your current approach?
- What would you want a prioritisation tool to achieve?
- What do you have in your organisation that could help you implement a prioritisation tool?
- What one action are you going to complete after attending this session?



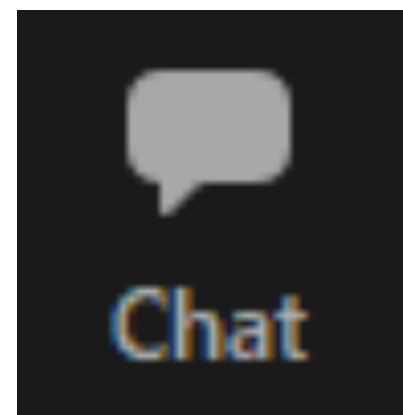
Three take home messages

1. Use the evidence when considering tool implementation
2. Engage frontline staff in the development and implementation of prioritisation tools
3. Monitor and evaluate the impact of changes



Questions

- Please raise your hand or use the chat function to ask questions





THANKS FOR LISTENING

Please email questions to penny.lewis@manchester.ac.uk
or steven.williams@dorsetgp.nhs.uk or tweet
[@DrPennyLewis](https://twitter.com/DrPennyLewis) [@STEVECHEMIST](https://twitter.com/STEVECHEMIST)